

**Work Order ID 144975**

Thursday, April 28, 2016 10:41:00 AM

**\*144975\*****PRELIMINARY  
ISSUE** 9-89

Page 1

Item ID: D5101-047 Accept **\*N900040100\*** Setup Start **\*NS1\***  
Revision ID: Stop **\*NS2\***  
Item Name: Crossbolt Spacer Assembly  
Start Date: 4/28/2016 Start Qty: 10.00 **\*10\*** Cust Item ID:  
Required Date: 5/6/2016 Req'd Qty: 10.00 **\*10\*** Customer:  
Reference: REWORK TO NEW DRAWING

Approvals: Process Plan: MF. Date: 16-4-28 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description                                      | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp     |
|--------------------------------|---------------------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|--------------------|
| Draw Nbr                       | Revision Nbr                                                  |                      |         |        |              |               |               |                  |                    |
| D5101                          | <u>B</u> <u>PRELIM</u><br><u>9-89 16-11-02</u>                |                      |         |        |              |               |               |                  |                    |
| 200                            |                                                               | 0.00                 |         |        |              | <u>10</u>     | <u>FF</u>     |                  | <u>MAY 05 2016</u> |
| <b>*200*</b>                   |                                                               |                      |         |        |              |               |               |                  |                    |
| QC                             | Memo                                                          | 0.00                 |         |        |              |               |               |                  |                    |
| Quality Control                | PULL FROM STOCK D5101-047 X 10 B139909 AND BRING TO SMALL FAB |                      |         |        |              |               |               |                  |                    |
| 210                            |                                                               | 0.00                 |         |        |              | <u>9</u>      | <u>FF</u>     |                  | <u>MAY 05 2016</u> |
| <b>*210*</b>                   |                                                               |                      |         |        |              |               |               |                  |                    |
| Small Fab                      | Memo                                                          | 0.00                 |         |        |              |               |               |                  |                    |
| Small Fab                      | GRIND OUTER PROFILE USING SS TEMPLATE                         |                      |         |        |              |               |               |                  |                    |
|                                | GET APPROVAL FROM DAVID BAIN ON FIRST ONE                     |                      |         |        |              |               |               |                  |                    |
|                                | DEBURR                                                        |                      |         |        |              |               |               |                  |                    |

ENG 7105 MAY.

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



# WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                       |                                                                                      |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|-------------------------------------------------------|--------------------------------------------------------------------------------------|--|
| Work Order: <u>144975</u><br>Part No. <u>D5101-047</u><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <b>DISPOSITION</b><br>Rework <input type="checkbox"/><br>Scrap <input checked="" type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |  | <b>AGAINST DEPARTMENT/PROCESS</b><br>Skid-tube <input type="checkbox"/> Cross tube <input type="checkbox"/> Water Jet <input type="checkbox"/> Engineering <input checked="" type="checkbox"/><br>Machining <input type="checkbox"/> Small Fab <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Quality <input type="checkbox"/><br>Thermoforming <input type="checkbox"/> Finishing <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Other <input type="checkbox"/><br>Large Fab <input type="checkbox"/> Composite <input type="checkbox"/> Supplier <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |                                                       |                                                                                      |  |
| Date: <u>16-05-05</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Step #: <u>210</u>                                                                                                                                                                        |  | QTY Effective: <u>1</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  | MRB (QSI042) Approval<br><u>PD</u><br><u>16-05-05</u> |                                                                                      |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                                                                                                                                                                           |  | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |                                                       | Completed By<br><u>D. Davis</u>                                                      |  |
| Scrap Part was <del>hand</del> modified<br>by hand to test the solution<br>Not to be used for production<br>P.C. <del>to</del> use one for testing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                                                                           |  | Scrap / destroy<br>No replace                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |                                                       | Lead hand / Supervisor<br>Approval Verification<br><u>9-89</u><br><u>MAY 05 2016</u> |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                       | QC / QA Coordinator<br>Approval<br><u>PD</u><br><u>16-05-05</u>                      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                       |                                                                                      |  |
| <b>Root Cause</b><br>Environment <input type="checkbox"/> No Re-verification <input type="checkbox"/><br>Design <input checked="" type="checkbox"/> Operator <input type="checkbox"/><br>Doc/Data <input type="checkbox"/> Offset/Setup <input type="checkbox"/><br>Equip/Tooling <input type="checkbox"/> Supplier <input type="checkbox"/><br>Handling/Pre <input type="checkbox"/> Training <input type="checkbox"/><br>Material <input checked="" type="checkbox"/> Use for Testing <input type="checkbox"/><br>Internal Transport <input type="checkbox"/> Poor Information <input type="checkbox"/><br>Tribal Knowledge <input type="checkbox"/> Rushing <input type="checkbox"/><br>LOA <input type="checkbox"/> Product Improvement <input type="checkbox"/><br>Substation <input type="checkbox"/> Process Improvement <input type="checkbox"/><br>Past Expiry Date <input type="checkbox"/> Manufacturing Process <input type="checkbox"/><br>Misidentified <input type="checkbox"/> Past Due <input type="checkbox"/> |  |                                                                                                                                                                                           |  | <b>FAULT CATEGORY</b><br>Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Positioned Wrong <input type="checkbox"/><br>Bending <input type="checkbox"/> Set-up <input type="checkbox"/> Folio/Program <input type="checkbox"/> Outside Dimensions <input type="checkbox"/><br>Centre Not Concentric <input type="checkbox"/> BOM/Route <input type="checkbox"/> Grain <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/><br>Cracks <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Weld <input type="checkbox"/> Part Incorrect <input type="checkbox"/><br>Crimp/Kink/Ripple/Wave <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/><br>Cuffs <input type="checkbox"/> Contamination <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Part Moved <input type="checkbox"/><br>Crushing <input type="checkbox"/> Countersink <input type="checkbox"/> Off-set <input type="checkbox"/> Drawing <input type="checkbox"/><br>Heat Treat <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Misabeled <input type="checkbox"/> Finish <input type="checkbox"/><br>Wave/Twist in Tube <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> <input checked="" type="checkbox"/> Fit/Function <input type="checkbox"/> Misread <input type="checkbox"/><br>Marks/Chatter <input type="checkbox"/> Drill Holes <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Turning Sequence <input type="checkbox"/> |  |  |                                                       |                                                                                      |  |
| OTHER: _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                       |                                                                                      |  |

**Work Order ID 144975**

Thursday, April 28, 2016 10:41:00 AM

**\*144975\***

Page 2

Item ID: D5101-047 Accept **\*N900040100\*** Setup Start **\*NS1\***  
Revision ID: Stop **\*NS2\***  
Item Name: Crossbolt Spacer Assembly  
Start Date: 4/28/2016 Start Qty: 10.00 **\*10\*** Cust Item ID:  
Required Date: 5/6/2016 Req'd Qty: 10.00 **\*10\*** Customer:  
Reference: REWORK TO NEW DRAWING

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

| Sequence ID/<br>Work Center ID         | Operation<br>Description                          | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp                                                             |
|----------------------------------------|---------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------------------------------------------------------------------|
| 220                                    | QC5- Inspect part completeness to step on W/O     | 0.00                 |         |        |              |               |               |                  |                                                                            |
| <b>*220*</b><br>QC<br>Quality Control  | Memo                                              | 0.00                 |         |        |              |               |               |                  | <del>⑨ 16-05-05 PA</del><br>DAS<br>⑨ 16-11-2 9<br>as per Approva 8-89 EWC. |
| 230                                    | Identify as per dwg & Stock Location: <u>FRW1</u> | 0.00                 |         |        |              |               |               |                  |                                                                            |
| <b>*230*</b><br>Packaging<br>Packaging | Memo                                              | 0.00                 |         |        |              |               |               |                  | <del>9x. 8p16-05-6.</del><br>9x of ill vehicle                             |
| 240                                    | QC21- Final Inspection - Work Order Release       | 0.00                 |         |        |              |               |               |                  |                                                                            |
| <b>*240*</b><br>QC<br>Quality Control  | Memo                                              | 0.00                 |         |        |              |               |               |                  | DAS<br>21<br>9-89<br>NOV 02 2016                                           |

~~20160506~~



DQA: \_\_\_\_\_ Date: \_\_\_\_\_

## WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |  |  |  |                                                                                                                                                               |  |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | Step #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  | <b>MRB (QSI042) Approval</b><br><br><b>Completed By</b><br><br><b>Lead hand / Supervisor Approval Verification</b><br><br><b>QC / QA Coordinator Approval</b> |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |                                                                                                                                                               |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |                                                                                                                                                               |  |
| <b>Root Cause</b><br><div style="display: flex; justify-content: space-between;"> <div>           Environment <input type="checkbox"/><br/>           Design <input type="checkbox"/><br/>           Doc/Data <input type="checkbox"/><br/>           Equip/Tooling <input type="checkbox"/><br/>           Handling/Pre <input type="checkbox"/><br/>           Material <input type="checkbox"/><br/>           Internal Transport <input type="checkbox"/><br/>           Tribal Knowledge <input type="checkbox"/><br/>           LOA <input type="checkbox"/><br/>           Substation <input type="checkbox"/><br/>           Past Expiry Date <input type="checkbox"/><br/>           Misidentified <input type="checkbox"/> </div> <div>           No Re-verification <input type="checkbox"/><br/>           Operator <input type="checkbox"/><br/>           Offset/Setup <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Training <input type="checkbox"/><br/>           Use for Testing <input type="checkbox"/><br/>           Poor Information <input type="checkbox"/><br/>           Rushing <input type="checkbox"/><br/>           Product Improvement <input type="checkbox"/><br/>           Process Improvement <input type="checkbox"/><br/>           Manufacturing Process <input type="checkbox"/><br/>           Past Due <input type="checkbox"/> </div> </div> |  | <b>FAULT CATEGORY</b><br><div style="display: flex; justify-content: space-between;"> <div>           Pressure/Forced <input type="checkbox"/><br/>           Bending <input type="checkbox"/><br/>           Centre Not Concentric <input type="checkbox"/><br/>           Cracks <input type="checkbox"/><br/>           Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>           Cuffs <input type="checkbox"/><br/>           Crushing <input type="checkbox"/><br/>           Heat Treat <input type="checkbox"/><br/>           Wave/Twist in Tube <input type="checkbox"/><br/>           Marks/Chatter <input type="checkbox"/> </div> <div>           Temperature/Cure <input type="checkbox"/><br/>           Set-up <input type="checkbox"/><br/>           BOM/Route <input type="checkbox"/><br/>           Broken/Damage/Defect <input type="checkbox"/><br/>           Inspection Incomplete/Unqualified <input type="checkbox"/><br/>           Contamination <input type="checkbox"/><br/>           Countersink <input type="checkbox"/><br/>           Cut Too Short <input type="checkbox"/><br/>           Instructions Incomplete/Unclear <input type="checkbox"/><br/>           Drill Holes <input type="checkbox"/> </div> <div>           Power Loss/Surge <input type="checkbox"/><br/>           Folio/Program <input type="checkbox"/><br/>           Grain <input type="checkbox"/><br/>           Weld <input type="checkbox"/><br/>           Wrong Stock Pulled <input type="checkbox"/><br/>           Out of Sequence <input type="checkbox"/><br/>           Off-set <input type="checkbox"/><br/>           Misabeled <input type="checkbox"/><br/>           Fit/Function <input type="checkbox"/><br/>           Misaligned/off center <input type="checkbox"/> </div> <div>           Positioned Wrong <input type="checkbox"/><br/>           Outside Dimensions <input type="checkbox"/><br/>           Over/Under tolerance <input type="checkbox"/><br/>           Part Incorrect <input type="checkbox"/><br/>           Part Lost/Missing <input type="checkbox"/><br/>           Part Moved <input type="checkbox"/><br/>           Drawing <input type="checkbox"/><br/>           Finish <input type="checkbox"/><br/>           Misread <input type="checkbox"/><br/>           Turning Sequence <input type="checkbox"/> </div> </div> |  | OTHER : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |                                                                                                                                                               |  |

# Picklist Print

Thursday, April 28, 2016 10:40:59 AM

Page 1

Work Order ID: 144975

**\*144975\***

Parent Item: D5101-047

**\*D5101-047\***

Parent Item Name: Crossbolt Spacer Assembly

Start Date: 4/28/2016

Required Date: 5/6/2016

Start Qty: 10.00

Required Qty: 10.00

Comments: IPP Rev.A New issue JFS 15/09/29 Verified by: DD  
15.12.10 AS PER DWG REV B DD VERF:JLM

IPP REV:B

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand | Qty per Kit | Total<br>Qty | Qty<br>Issued | Date<br>Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
| D5101-047                       |                        | Manufactured  | No          |                     |                  |                 | Each               | 0.0000         |             | 10           |               |                |        |
| <b>*D5101-047*</b>              |                        |               |             |                     |                  |                 |                    |                | <b>**</b>   |              |               |                |        |

Crossbolt Spacer Assembly

10 X 139909  
ME  
16-4-28

MS21209 F7 - 10  
Insert.

Batch: M133538  
Qty 4

16-05-04

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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|--------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|----------------------------------------------------------------------------------------------------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ |  | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |  | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |  |  |  |                                                                                                                                        |  |
| Date :                                                       |  | Step #:                                                                                                                                                                            |  | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  | <b>MRB (QSI042) Approval</b><br><br><div style="border: 1px solid black; height: 150px; margin-top: 10px;"></div>                      |  |
| Description Work Order Deviation                             |  |                                                                                                                                                                                    |  | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |                                                                                                                                        |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |                                                                                                                                        |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |                                                                                                                                        |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  | <b>Completed By</b><br><br><div style="border: 1px solid black; height: 40px; margin-top: 5px;"></div>                                 |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  | <b>Lead hand / Supervisor Approval Verification</b><br><br><div style="border: 1px solid black; height: 40px; margin-top: 5px;"></div> |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  | <b>QC / QA Coordinator Approval</b><br><br><div style="border: 1px solid black; height: 40px; margin-top: 5px;"></div>                 |  |

| Root Cause                            |                                     |                                             |                                           | FAULT CATEGORY                                  |                                                            |                                                |                                               |
|---------------------------------------|-------------------------------------|---------------------------------------------|-------------------------------------------|-------------------------------------------------|------------------------------------------------------------|------------------------------------------------|-----------------------------------------------|
| Environment <input type="checkbox"/>  | Design <input type="checkbox"/>     | Doc/Data <input type="checkbox"/>           | Equip/Tooling <input type="checkbox"/>    | Pressure/Forced <input type="checkbox"/>        | Temperature/Cure <input type="checkbox"/>                  | Power Loss/Surge <input type="checkbox"/>      | Positioned Wrong <input type="checkbox"/>     |
| Handling/Pre <input type="checkbox"/> | Material <input type="checkbox"/>   | Internal Transport <input type="checkbox"/> | Tribal Knowledge <input type="checkbox"/> | Bending <input type="checkbox"/>                | Set-up <input type="checkbox"/>                            | Folio/Program <input type="checkbox"/>         | Outside Dimensions <input type="checkbox"/>   |
| LOA <input type="checkbox"/>          | Substation <input type="checkbox"/> | Past Expiry Date <input type="checkbox"/>   | Misidentified <input type="checkbox"/>    | Centre Not Concentric <input type="checkbox"/>  | BOM/Route <input type="checkbox"/>                         | Grain <input type="checkbox"/>                 | Over/Under tolerance <input type="checkbox"/> |
|                                       |                                     |                                             |                                           | Cracks <input type="checkbox"/>                 | Broken/Damage/Defect <input type="checkbox"/>              | Weld <input type="checkbox"/>                  | Part Incorrect <input type="checkbox"/>       |
|                                       |                                     |                                             |                                           | Crimp/Kink/Ripple/Wave <input type="checkbox"/> | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/>    | Part Lost/Missing <input type="checkbox"/>    |
|                                       |                                     |                                             |                                           | Cuffs <input type="checkbox"/>                  | Contamination <input type="checkbox"/>                     | Out of Sequence <input type="checkbox"/>       | Part Moved <input type="checkbox"/>           |
|                                       |                                     |                                             |                                           | Crushing <input type="checkbox"/>               | Countersink <input type="checkbox"/>                       | Off-set <input type="checkbox"/>               | Drawing <input type="checkbox"/>              |
|                                       |                                     |                                             |                                           | Heat Treat <input type="checkbox"/>             | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>            | Finish <input type="checkbox"/>               |
|                                       |                                     |                                             |                                           | Wave/Twist in Tube <input type="checkbox"/>     | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>          | Misread <input type="checkbox"/>              |
|                                       |                                     |                                             |                                           | Marks/Chatter <input type="checkbox"/>          | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/> | Turning Sequence <input type="checkbox"/>     |
|                                       |                                     |                                             |                                           | OTHER : _____                                   |                                                            |                                                |                                               |

## List Lots

Page 1 of 1

Thursday, April 28, 2016 10:31:33 AM

Criteria : Item ID: d5101-047 All Locations All Warehouses All Quantity

| Item ID<br>Item Name                   | Warehouse ID<br>Location ID | Lot Number | Last Trans Date | Lot Qty | Shelf Life Dt<br>Lot Code | Type Code | Comments |
|----------------------------------------|-----------------------------|------------|-----------------|---------|---------------------------|-----------|----------|
| D5101-047<br>Crossbolt Spacer Assembly | Quarantine<br>QUANRANTINE   | 139909     | 1/27/2016       | 10.0000 | QC21                      |           |          |
| Total:                                 |                             |            |                 | 10.0000 |                           |           |          |

# ~~14495~~ 144975



DQA: \_\_\_\_\_ Date: \_\_\_\_\_



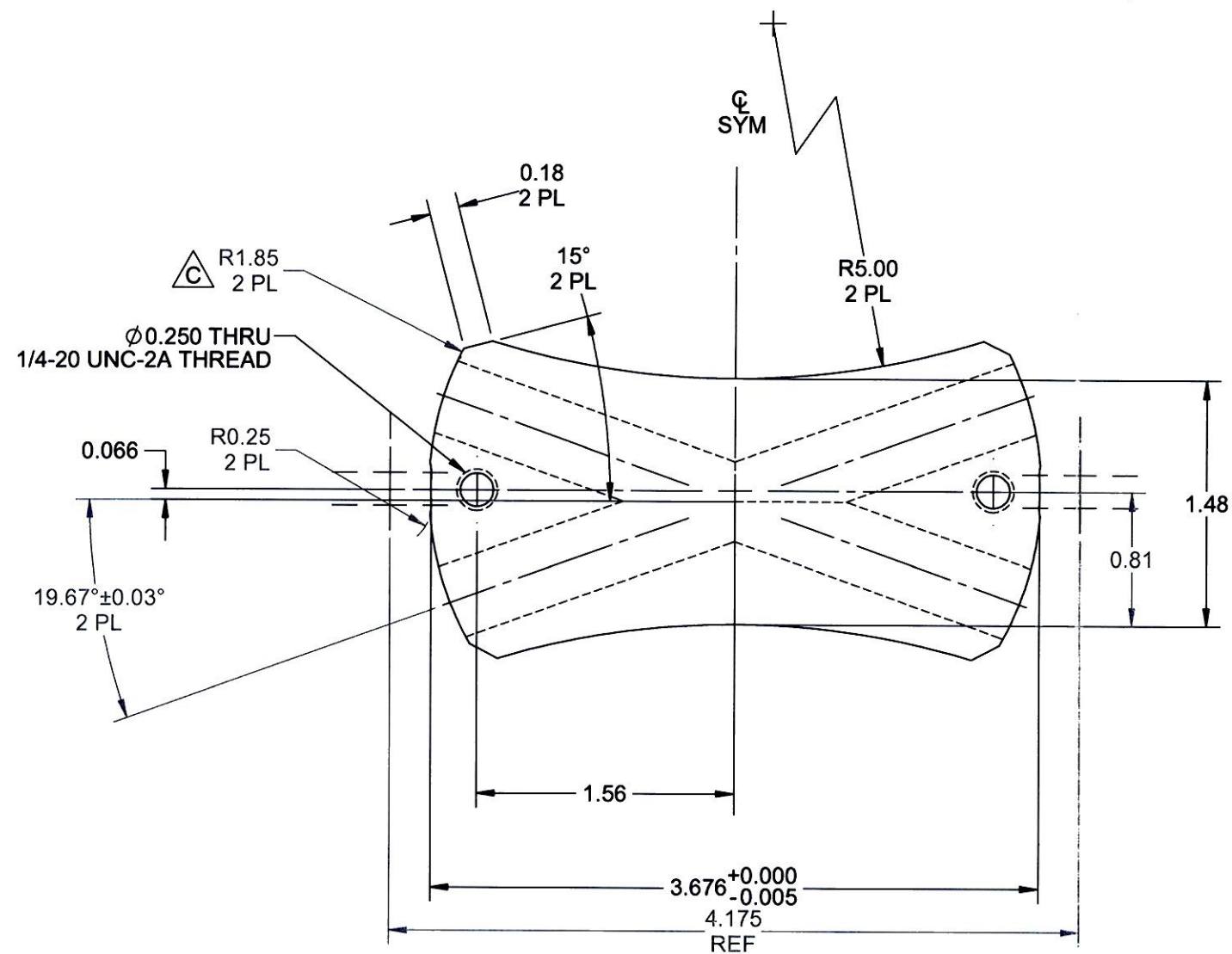
## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

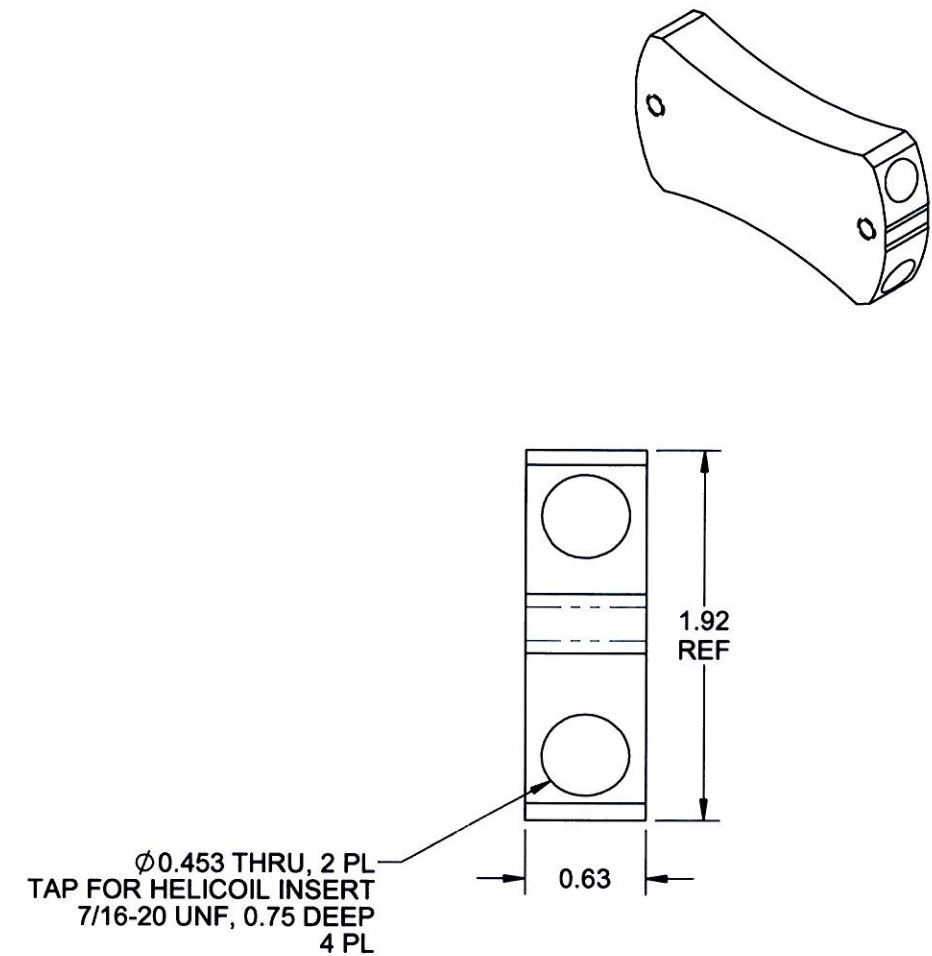
Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                      | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Date : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Step #: _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | QTY Effective : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | MRB (QSI042) Approval                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Completed By                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Lead hand / Supervisor Approval Verification                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | QC / QA Coordinator Approval                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Root Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | FAULT CATEGORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Environment <input type="checkbox"/><br>Design <input type="checkbox"/><br>Doc/Data <input type="checkbox"/><br>Equip/Tooling <input type="checkbox"/><br>Handling/Pre <input type="checkbox"/><br>Material <input type="checkbox"/><br>Internal Transport <input type="checkbox"/><br>Tribal Knowledge <input type="checkbox"/><br>LOA <input type="checkbox"/><br>Substation <input type="checkbox"/><br>Past Expiry Date <input type="checkbox"/><br>Misidentified <input type="checkbox"/> | No Re-verification <input type="checkbox"/><br>Operator <input type="checkbox"/><br>Offset/Setup <input type="checkbox"/><br>Supplier <input type="checkbox"/><br>Training <input type="checkbox"/><br>Use for Testing <input type="checkbox"/><br>Poor Information <input type="checkbox"/><br>Rushing <input type="checkbox"/><br>Product Improvement <input type="checkbox"/><br>Process Improvement <input type="checkbox"/><br>Manufacturing Process <input type="checkbox"/><br>Past Due <input type="checkbox"/> | Pressure/Forced <input type="checkbox"/><br>Bending <input type="checkbox"/><br>Centre Not Concentric <input type="checkbox"/><br>Cracks <input type="checkbox"/><br>Crimp/Kink/Ripple/Wave <input type="checkbox"/><br>Cuffs <input type="checkbox"/><br>Crushing <input type="checkbox"/><br>Heat Treat <input type="checkbox"/><br>Wave/Twist in Tube <input type="checkbox"/><br>Marks/Chatter <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Temperature/Cure <input type="checkbox"/><br>Set-up <input type="checkbox"/><br>BOM/Route <input type="checkbox"/><br>Broken/Damage/Defect <input type="checkbox"/><br>Inspection Incomplete/Unqualified <input type="checkbox"/><br>Contamination <input type="checkbox"/><br>Countersink <input type="checkbox"/><br>Cut Too Short <input type="checkbox"/><br>Instructions Incomplete/Unclear <input type="checkbox"/><br>Drill Holes <input type="checkbox"/> | Power Loss/Surge <input type="checkbox"/><br>Folio/Program <input type="checkbox"/><br>Grain <input type="checkbox"/><br>Weld <input type="checkbox"/><br>Wrong Stock Pulled <input type="checkbox"/><br>Out of Sequence <input type="checkbox"/><br>Off-set <input type="checkbox"/><br>Misabeled <input type="checkbox"/><br>Fit/Function <input type="checkbox"/><br>Misaligned/off center <input type="checkbox"/> | Positioned Wrong <input type="checkbox"/><br>Outside Dimensions <input type="checkbox"/><br>Over/Under tolerance <input type="checkbox"/><br>Part Incorrect <input type="checkbox"/><br>Part Lost/Missing <input type="checkbox"/><br>Part Moved <input type="checkbox"/><br>Drawing <input type="checkbox"/><br>Finish <input type="checkbox"/><br>Misread <input type="checkbox"/><br>Turning Sequence <input type="checkbox"/> |
| OTHER : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                   |





**D5101-7 CROSSBOLT SPACER**



**NOTES:**

- 1) MATERIAL: DELRIN II 150E OR ACETRON GP ACETAL  
REF DART SPEC M-DELRIN-B
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.13 lbs
- 8) FOR ALL NON-DIMENSIONED FEATURES, REFER TO CAD FILE D5101-7C.STEP

APPROVED BY DESIGN MANAGER

**PRELIMINARY ISSUE**

For Rework Verification  
D. Ban.

|                                                                                                                                                                                                                                     |                 |                                                     |              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------|--------------|
| DESIGN                                                                                                                                                                                                                              | AK              | <b>DART AEROSPACE USA, INC.</b>                     |              |
| DRAWN                                                                                                                                                                                                                               | DB              | EUGENE, OR                                          |              |
| CHECKED                                                                                                                                                                                                                             | ML              | DRAWING NO.                                         | REV. C       |
| MFG. APPR.                                                                                                                                                                                                                          | JLM             | <b>D5101</b>                                        | SHEET 6 OF 6 |
| APPROVED                                                                                                                                                                                                                            | WM              | TITLE                                               | SCALE        |
| DE APPR.                                                                                                                                                                                                                            | DS              | <b>CROSSBOLT SPACER</b>                             | NTS          |
| DATE                                                                                                                                                                                                                                | <b>16.04.19</b> | <b>COPYRIGHT © 2014 BY DART AEROSPACE USA, INC.</b> |              |
| THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC. |                 |                                                     |              |

Purchase Order Receipt Listing

Thursday, October 29, 2015 2:06:29 PM

All Vendors PO ID PO30007 All Receipt Dates All Line Item Types  
All Item ID, GL, WOS All Rec. Employees All Currencies

Grouped by Vendor ID

| Purchase Order ID/ Nbr/ Line | Project ID | Reference/ Description/ Cert Std | PO L/M / Stock L/M | Required Date | Required Qty | Recv Date/ Recv Emp | Recv Qty (PO L/M) | Cost Per L mlt/ Recv Value | Inspected Qty/ MIRB Qty/ MIRB Reject Qty | Rejected Qty (PO L/M) | Req Insp | Vendor Name |
|------------------------------|------------|----------------------------------|--------------------|---------------|--------------|---------------------|-------------------|----------------------------|------------------------------------------|-----------------------|----------|-------------|
|------------------------------|------------|----------------------------------|--------------------|---------------|--------------|---------------------|-------------------|----------------------------|------------------------------------------|-----------------------|----------|-------------|

|         |   |                                    |                       |         |  |        |  |          |        |   |    |     |
|---------|---|------------------------------------|-----------------------|---------|--|--------|--|----------|--------|---|----|-----|
| PO30007 | 3 | MDLRINB0.75X1.2 50                 | 10/27/2015 10/29/2015 | 8.0000  |  |        |  | \$15.13  | 0.0000 | 0 | No | CAD |
|         |   | Delrin Bar m133488                 |                       | 8.0000  |  | DCUSER |  | \$121.03 | 0.0000 | 0 |    |     |
|         | 4 | MDLRINB1.000X0.4 000               | 10/27/2015 10/29/2015 | 24.0000 |  |        |  | \$19.10  | 0.0000 | 0 | No |     |
|         |   | Delrin Bar m133488                 |                       | 24.0000 |  | DCUSER |  | \$458.32 | 0.0000 | 0 |    |     |
|         | 5 | 71401-45                           | 10/27/2015 10/29/2015 | 1.0000  |  |        |  | \$0.00   | 0.0000 | 0 | No |     |
|         |   | Procurement Quality Clause m133488 |                       | 1.0000  |  | DCUSER |  | \$0.00   | 0.0000 | 0 |    |     |

Total Received Quantity: 33.0000  
Total Qty to Inspect (PO L/M): 0.0000  
Total Reject Quantity: 0.0000  
Total Receipt Value: \$579.35  
Total Balance Due Quantity: 0.0000

All amounts are calculated in domestic currency.

## PACKING SLIP

## SABIC POLYMERSHAPES

Ship To:  
DART AEROSPACE LTD  
1270 ABERDEEN STREET  
HAWKESBURY, ON, K6A 1K7  
CANADA  
Telephone - 1 (613) 6325200

Bill To:  
DART AEROSPACE LTD  
1270 ABERDEEN STREET  
HAWKESBURY, ON, K6A 1K7  
Canada

DATE:  
27-OCT-15

ORDER:  
99010983

PMT TERMS:  
CA NET 30

F.O.B.

WAREHOUSE: OTTAWA ON - SABIC POLYMERSHAPES  
1290 Old Innes Road, Unit 713, Ottawa, ON, K1B 5M6, CA

PURCHASE ORDER:  
PO30007

FRT TERMS:  
Collect Freight

SALES REPRESENTATIVE:  
DIXON, WADE

CONTACT NUMBER:  
0014005000120

ORDER DATE:  
14-OCT-15

DELIVERY NAME  
28113873

WAYBILL NUMBER:  
73642741082

FREIGHT CARRIER:  
TST OVERLAND EXPRESS

FREIGHT CHARGE COMMENT:  
CLAVOIE@DARTAERO.COM

| LINE | PART NUMBER/ ITEM DESCRIPTION                                                                                                     | SHIP DATE   | QTY ORDERED | QTY SHIPPED | QTY BACKORD | UOM |
|------|-----------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|-----|
| 1    | 55200104-C<br>ACT SH-0.750 1.25x96 BK CP   ACETRON GP<br>SPECIAL INSTRUCTIONS: NOT CONTINUOUS<br>LOT Numbers:<br>(1 Qty)          | 27-OCT-2015 | 1           | 1           | 0           | EA  |
| 2    | 55247104-C<br>ACT SH 1.000 4x288 BK CP   ACETRON GP<br>SPECIAL INSTRUCTIONS: Not continuous OTW-101640<br>LOT Numbers:<br>(1 Qty) | 27-OCT-2015 |             | 1           | 0           | EA  |

RECEIVING IN GOOD CONDITION

Signed:

Date:

Unless otherwise agreed to in a document signed by both parties, any sale by SABIC Polymershapes ("Polymershapes") is made exclusively under Polymershapes' Standard Terms and Conditions of Sale, which are available on request and online at [www.sabicpolymershapes.com](http://www.sabicpolymershapes.com). ALTHOUGH ANY INFORMATION, RECOMMENDATIONS, OR ADVICE CONTAINED HEREIN IS GIVEN IN GOOD FAITH, POLYMERSHAPES MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, AS TO THE RESULTS, EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING POLYMERSHAPES PRODUCTS, MATERIALS, SERVICES, RECOMMENDATIONS OR ADVICE. EXCEPT AS PROVIDED IN POLYMERSHAPES' STANDARD CONDITIONS OF SALE, POLYMERSHAPES AND ITS REPRESENTATIVES SHALL IN NO EVENT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS, PRODUCTS OR SERVICES DESCRIBED HEREIN. Each user bears full responsibility for making its own determination as to the suitability of products, materials, services, recommendations, or advice for its own particular use. Each user must identify and perform all tests and analyses necessary to assure that its finished parts incorporating products, materials, or services purchased from SABIC Polymershapes will be safe and suitable for use under end-use conditions. Nothing in this or any other document, nor any oral recommendation or advice, shall be deemed to alter, vary, supersede, or waive any provision of Polymershapes' Conditions of Sale or this disclaimer, unless any such modification is specifically agreed to in a writing signed by Polymershapes. No statement contained herein concerning a possible or suggested use of any material, product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of Saudi Basic Industries Corporation or any of its subsidiaries or affiliates covering such use or design, or as a recommendation for the use of such material, product, service or design in the infringement of any patent or other intellectual property right. SABIC is a trademark of SABIC Holding Europe BV.

\*\*\* End Of Report \*\*\*



# Certificate of Conformance

SABIC Polymershapes

1290 Old Innes Rd suite 713  
Ottawa, ON K1B 5M6

Date: Tuesday 27 October 2015

|          |                             |                           |                       |
|----------|-----------------------------|---------------------------|-----------------------|
| Attn:    | Chantal Lavoie              | Customer P.O. Number:     | PO30007               |
| To:      | DART AEROSPACE LTD          | Sales Order No:           | 99010983              |
| Address: | 1270 ABERDEEN STREET        | Manufacturer's Reference: | OTW-101640 OTW-100402 |
|          | HAWKESBURY, ON, K6A 1K7, CA | Our Reference:            | OTW-101640 OTW-100402 |

It is hereby certified that, to the best of SABIC Polymershapes' knowledge, the product information provided below conforms to the corresponding information in the possession of SABIC Polymershapes with respect to such products. This certification and the sale of products are, unless otherwise agreed to in writing, subject to SABIC Polymershapes' standard conditions of sale. This document shall not be reproduced, except in full, without prior written approval.

| Quantity | Description                                                                       | Lot Number |
|----------|-----------------------------------------------------------------------------------|------------|
| 1        | ACT SH 0.750 CTSxCTS BK CP   ACETRON GP<br>NOT CONTINUOUS OTW-100402<br>1.25"x96" | 55200104-C |
| 1        | ACT SH 1.000 CTSxCTS BK CP   ACETRON GP<br>Not continuous OTW-101640<br>4"x288"   | 55247104-C |
|          |                                                                                   |            |
|          |                                                                                   |            |
|          |                                                                                   |            |

228  
44  
9-62

15/11/09

SABIC Polymershapes

By: Ellie Hawat  
Title: Quality Coordinator

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# MATERIAL RECEIPT INSPECTION FORM

DATE: 15/11/09  
 MODEL NO: MDEL R/L

QTY: 3000 / 7133488

QUANTITY RECEIVED: 24  
 QUANTITY INSPECTED: 24  
 QUANTITY REJECTED: 0

REMARKS: 1.00X4.00  
1.00X4.00  
1.00X4.00

| ITEM NO. | DESCRIPTION | QTY | UNIT | REMARKS |
|----------|-------------|-----|------|---------|
| 1        | ...         | ... | ...  | ...     |
| 2        | ...         | ... | ...  | ...     |
| 3        | ...         | ... | ...  | ...     |
| 4        | ...         | ... | ...  | ...     |
| 5        | ...         | ... | ...  | ...     |
| 6        | ...         | ... | ...  | ...     |
| 7        | ...         | ... | ...  | ...     |
| 8        | ...         | ... | ...  | ...     |
| 9        | ...         | ... | ...  | ...     |
| 10       | ...         | ... | ...  | ...     |
| 11       | ...         | ... | ...  | ...     |
| 12       | ...         | ... | ...  | ...     |
| 13       | ...         | ... | ...  | ...     |
| 14       | ...         | ... | ...  | ...     |
| 15       | ...         | ... | ...  | ...     |
| 16       | ...         | ... | ...  | ...     |
| 17       | ...         | ... | ...  | ...     |
| 18       | ...         | ... | ...  | ...     |
| 19       | ...         | ... | ...  | ...     |
| 20       | ...         | ... | ...  | ...     |
| 21       | ...         | ... | ...  | ...     |
| 22       | ...         | ... | ...  | ...     |
| 23       | ...         | ... | ...  | ...     |
| 24       | ...         | ... | ...  | ...     |

| RECORD RESULTS BELOW |             |     |      |         |
|----------------------|-------------|-----|------|---------|
| ITEM NO.             | DESCRIPTION | QTY | UNIT | REMARKS |
| 1                    | ...         | ... | ...  | ...     |
| 2                    | ...         | ... | ...  | ...     |
| 3                    | ...         | ... | ...  | ...     |
| 4                    | ...         | ... | ...  | ...     |
| 5                    | ...         | ... | ...  | ...     |
| 6                    | ...         | ... | ...  | ...     |
| 7                    | ...         | ... | ...  | ...     |
| 8                    | ...         | ... | ...  | ...     |
| 9                    | ...         | ... | ...  | ...     |
| 10                   | ...         | ... | ...  | ...     |
| 11                   | ...         | ... | ...  | ...     |
| 12                   | ...         | ... | ...  | ...     |
| 13                   | ...         | ... | ...  | ...     |
| 14                   | ...         | ... | ...  | ...     |
| 15                   | ...         | ... | ...  | ...     |
| 16                   | ...         | ... | ...  | ...     |
| 17                   | ...         | ... | ...  | ...     |
| 18                   | ...         | ... | ...  | ...     |
| 19                   | ...         | ... | ...  | ...     |
| 20                   | ...         | ... | ...  | ...     |
| 21                   | ...         | ... | ...  | ...     |
| 22                   | ...         | ... | ...  | ...     |
| 23                   | ...         | ... | ...  | ...     |
| 24                   | ...         | ... | ...  | ...     |

| QC 18 INSPECTION      |                         | ENGINEERING SIGNOFF (if required) |                         |
|-----------------------|-------------------------|-----------------------------------|-------------------------|
| DATE: <u>15/11/09</u> | SIG: <u>[Signature]</u> | DATE: <u>15/11/09</u>             | SIG: <u>[Signature]</u> |

Attach this inspection sheet with the corresponding material cert and send to be scanned and received at

QC 18 INSPECTION Form is to be completed by QC 18 Inspector. It is to be filled

# MATERIAL RECEIPT INSPECTION FORM

MODEL RIM  
15/11/09

30007/13348.8

[illegible]

1. 1000 2 2000000 75X1.25  
 2. 1000 2 2000000 77X1.235  
 3. 1000 2 2000000  
 4. 1000 2 2000000

THE EFFECT OF MATERNAL AND FETAL HORMONE LEVELS ON FETAL

RECORDED IN NEW YORK BELOW

*Letters of the Day, the Daily Other*

## QC 18 INSPECTION

14

9-63

**ENGINEERING SIGNOFF (if required)**

Shiomi et al. 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 2682, 2683, 2684, 2

DANE

Attach this inspection sheet with the corresponding material test and send to be scanned and received in





Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO30007**

Purchase Order Date 10/5/2015 10:56:22 AM

PO Print Date 10/13/2015

Page Number 1 of 2

**Order From :**

VC-GEP001

**Ship To :** DART AEROSPACE LTD

SABIC POLYMERSHAPES  
1290 OLD INNES ROAD  
UNIT 713  
OTTAWA, ON K1B 5M6  
CA

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**Contact Name**

**Vendor Phone** 800 267 1575

**Buyer**

Chantal Lavoie

**Customer POID**

**Customer Tax #** 10127-2607

**Ship To Contact**

**Terms**

Net 30

**Ship To Phone**

**Currency**

CAD

**Ship Via:** TST ground

**FOB**

FCA -- (Free Carrier)

**Ship Acct:**

| Line Nbr          | Reference Vendor Part Number | Description/ Mfg ID | Req Date/ Taxable | CD | Req Qty/ Unit of Measure | PO Unit Price | Extended Price |
|-------------------|------------------------------|---------------------|-------------------|----|--------------------------|---------------|----------------|
| Line Comments     |                              |                     | Promise Date      |    |                          |               |                |
| Delivery Comments |                              |                     |                   |    |                          |               |                |

|   |              |                        |            |  |        |        |          |
|---|--------------|------------------------|------------|--|--------|--------|----------|
| 1 | MACRLICS.125 | 1/8" Polycast II Sheet | 10/19/2015 |  | 192.00 | \$2.66 | \$510.72 |
|   |              |                        | Yes        |  | sf     |        |          |
|   |              |                        | 10/19/2015 |  |        |        |          |

MATERIAL: POLYCAST II CLEAR ACRYLIC PER MIL-P-5425 OR PLEXIGLASS "G" CAST ACRYLIC

**Line Total:** \$510.72

|   |                    |            |            |  |      |         |          |
|---|--------------------|------------|------------|--|------|---------|----------|
| 3 | MDELRLNB0.75X1.250 | Delrin Bar | 10/19/2015 |  | 8.00 | \$20.19 | \$161.53 |
|   |                    |            | Yes        |  | f    |         |          |
|   |                    |            | 10/19/2015 |  |      |         |          |

MATERIAL: DELRIN II 150E OR ACETRON GP ACETAL  
COLOR: BLACK

**Line Total:** \$161.53

|   |                      |            |            |  |       |         |          |
|---|----------------------|------------|------------|--|-------|---------|----------|
| 4 | MDELRLNB1.000X04.000 | Delrin Bar | 10/19/2015 |  | 24.00 | \$25.49 | \$611.66 |
|   |                      |            | Yes        |  | f     |         |          |
|   |                      |            | 10/19/2015 |  |       |         |          |

MATERIAL: DELRIN II 150E OR ACETRON GP ACETAL  
COLOR: BLACK

Note:

10/13/2015

Sp15-10-29



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO30007**

Purchase Order Date 10/5/2015 10:56:22 AM

PO Print Date 10/13/2015

Page Number 2 of 2

**Order From :**

VC-GEP001

SABIC POLYMERSHAPES  
1290 OLD INNES ROAD  
UNIT 713  
OTTAWA, ON K1B 5M6  
CA

**Ship To :** DART AEROSPACE LTD

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**Contact Name**

**Vendor Phone** 800 267 1575

**Ship To Contact**

**Ship To Phone**

**Ship Via:** TST ground

**Ship Acct:**

**Buyer**

Chantal Lavoie

**Customer POID**

**Customer Tax #** 10127-2607

**Terms**

Net 30

**Currency**

CAD

**FOB**

FCA - (Free Carrier)

**Line Total:** \$611.66

|   |          |                            |            |      |   |        |        |
|---|----------|----------------------------|------------|------|---|--------|--------|
| 5 | 71401-45 | Procurement Quality Clause | 10/19/2015 | 1.00 | ✓ | \$0.00 | \$0.00 |
|---|----------|----------------------------|------------|------|---|--------|--------|

No

**Procurement Quality Clauses**

10/19/2015

A005 RIGHT OF ENTRY

A017 RAW MATERIAL IDENTIFICATION (AS APPLICABLE)

A026 CERTIFICATION OF MATERIAL CONFORMANCE

A040 NOTIFICATION OF QUALITY ESCAPE

A041 QUALITY MANAGEMENT SYSTEM

A042 DART NOTIFICATION BY SUPPLIER

A043 RETENTION OF QUALITY DOCUMENTS

**Line Total:** \$0.00

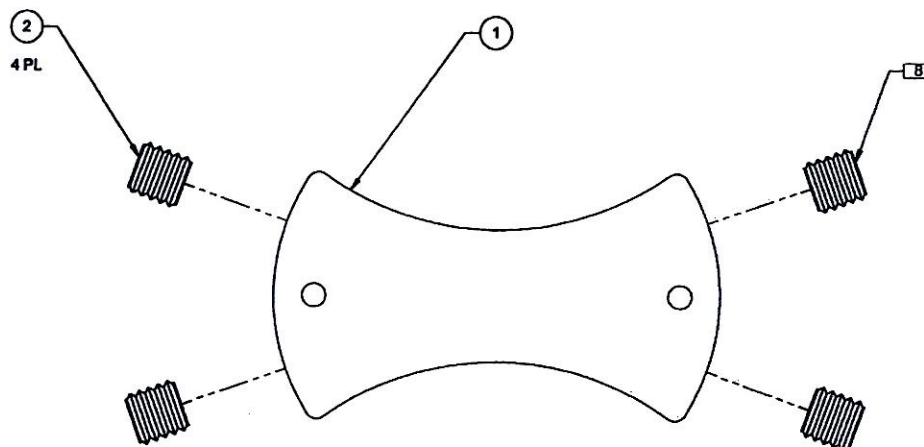
**PO Total:** \$1,283.91

Note: Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

Change Nbr: 5

Change Date: 10/13/2015

| ITEM | QTY<br>-041 | P/N          | DESCRIPTION           |
|------|-------------|--------------|-----------------------|
|      | X           | D5101-041    | CROSSBOLT SPACER ASSY |
| 1    | 1           | D5101-1      | CROSSBOLT SPACER      |
| 2    | 4           | MS21209F7-10 | HELICOIL, LOCKING     |



**D5101-041 CROSSBOLT SPACER ASSY**

**NOTES:**

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.7
- 7) WEIGHT: 0.14 lbs
- 8) INSTALL MS21209F7-10 HELICOIL ONE FULL REVOLUTION BELOW SURFACE

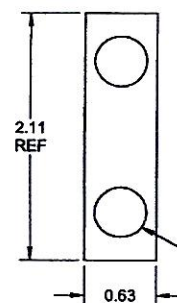
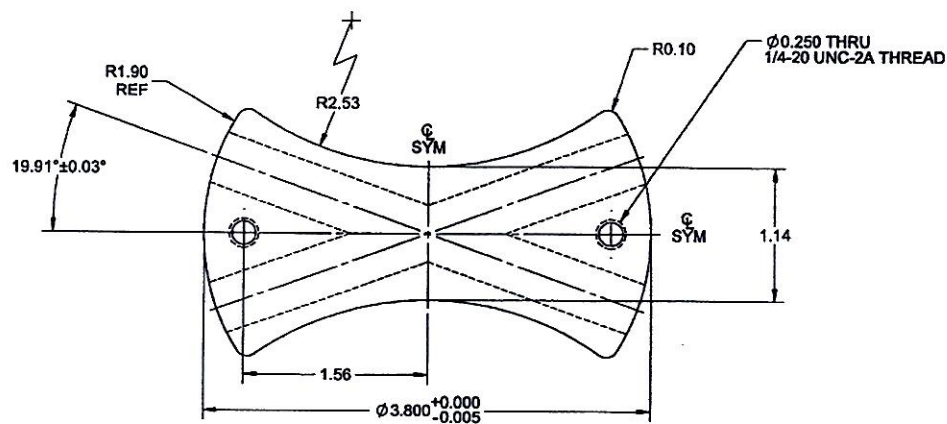
RELEASED  
2016-11-01  
EOL 16-161

| C          | SHEET 2: ADDED NOTE 8. SHEET 6: R1.65 WAS R1.90, 0.18 WAS 0.17, 3.676 WAS 3.680.                                                                                             | DB / AJS                                      | 18.04.19 |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|----------|
| B          | REVISE NOTE 8 (SH 1, 3 & 4) & NOTE 8 (SH 1). REVISED HELICOIL ANGLE TO 18.91° WAS 18°. ADD D5101-71-047 (SH 5&6). REMOVE 0.006 HOLES FROM -1, MS21209F7-10 WAS MS21209F7-15. | DB                                            | 15.10.15 |
| A          | NEW ISSUE                                                                                                                                                                    | AK                                            | 14.08.07 |
| REV.       | DESCRIPTION                                                                                                                                                                  | BY                                            | DATE     |
| DESIGN     | AK                                                                                                                                                                           | <b>DART AEROSPACE USA, INC.</b><br>EUGENE, OR |          |
| DRAWN      | AJS                                                                                                                                                                          |                                               |          |
| CHECKED    | WM                                                                                                                                                                           | DRAWING NO.<br><b>D5101</b>                   |          |
| MFG. APPR. | JLM                                                                                                                                                                          |                                               |          |
| APPROVED   | WM                                                                                                                                                                           | TITLE<br><b>CROSSBOLT SPACER</b>              |          |
| DE APPR.   | DS                                                                                                                                                                           |                                               |          |
| DATE       | 16.04.19                                                                                                                                                                     | REV. C<br>SHEET 1 OF 8<br>SCALE<br>NTS        |          |

APPROVED

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Ø 0.453 THRU, 2 PL  
TAP FOR HELICOIL INSERT  
7/16-20 UNF 0.75 DEEP  
4 PL

### D5101-1 CROSSBOLT SPACER

#### NOTES:

- 1) MATERIAL: DELRIN II 150E OR ACETRON GP ACETAL  
REF DART SPEC M-DELIRIN-B
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.12 lbs
- 8) FOR ALL NON-DIMENSIONED FEATURES, REFER TO CAD FILE D5101-1C.STEP

RELEASED  
2016-11-01

APPROVED

|            |          |
|------------|----------|
| DESIGN     | AK       |
| DRAWN      | AJS      |
| CHECKED    | WM       |
| MFG. APPR. | JLM      |
| APPROVED   | WM       |
| DE APPR.   | DS       |
| DATE       | 16.04.19 |

**DART AEROSPACE USA, INC.**  
EUGENE, OR

DRAWING NO.  
**D5101**

REV. C

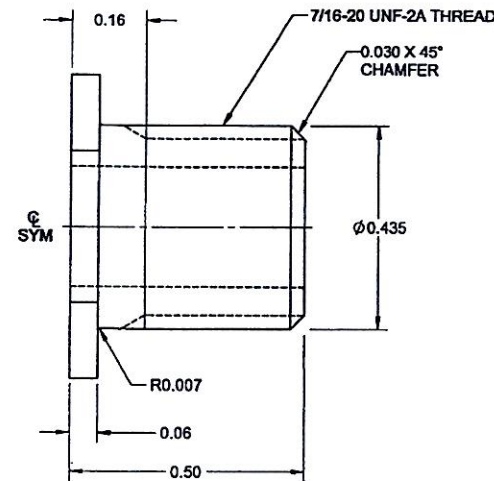
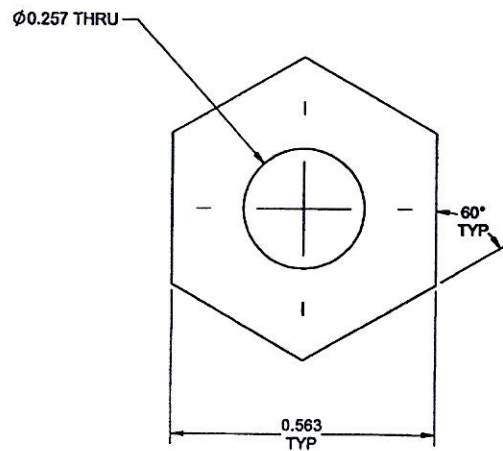
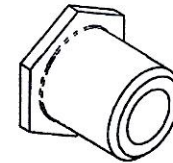
SHEET 2 OF 6

TITLE  
**CROSSBOLT SPACER**

SCALE

NTS

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# **D5101-3 INSERT**

## **NOTES:**

- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR  
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116) OR QQ-A-200/8 OR AMS-QQ-A-200/8  
(OR AMS 4160) OR ASTM B211 OR ASTM B221  
REF DART SPEC M6061T6R
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.7
- 7) WEIGHT: 0.005 lbs

RELEASED  
2016-11-01

APPROVED

|            |          |
|------------|----------|
| DESIGN     | AK       |
| DRAWN      | AJS      |
| CHECKED    | WM       |
| MFG. APPR. | JLM      |
| APPROVED   | WM       |
| DE APPR.   | DS       |
| DATE       | 16.04.19 |

**DART AEROSPACE USA, INC.**  
EUGENE, OR

DRAWING NO.  
**D5101**

REV. C

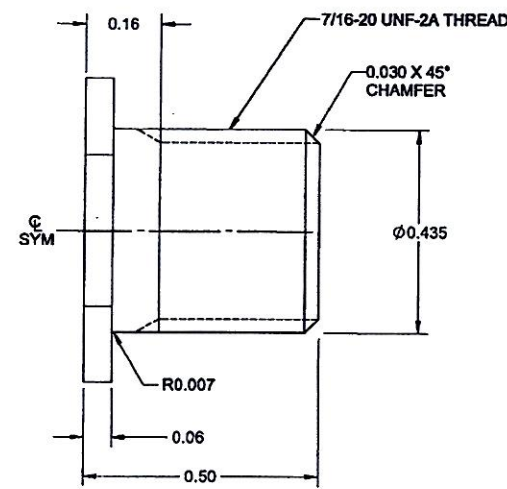
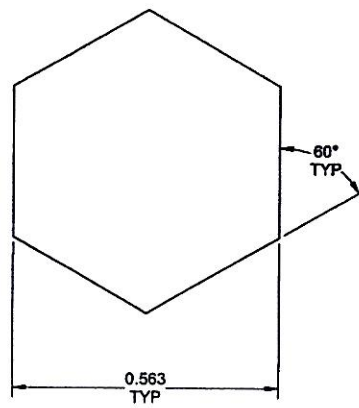
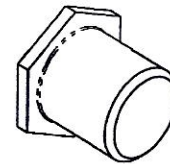
TITLE  
**CROSSBOLT SPACER**

SHEET 3 OF 8

SCALE

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# **D5101-5 INSERT**

## **NOTES:**

- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR  
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4118) OR QQ-A-200/8 OR AMS-QQ-A-200/8  
(OR AMS 4160) OR ASTM B211 OR ASTM B221  
REF DART SPEC M6061T6R
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.7
- 7) WEIGHT: 0.008 lbs

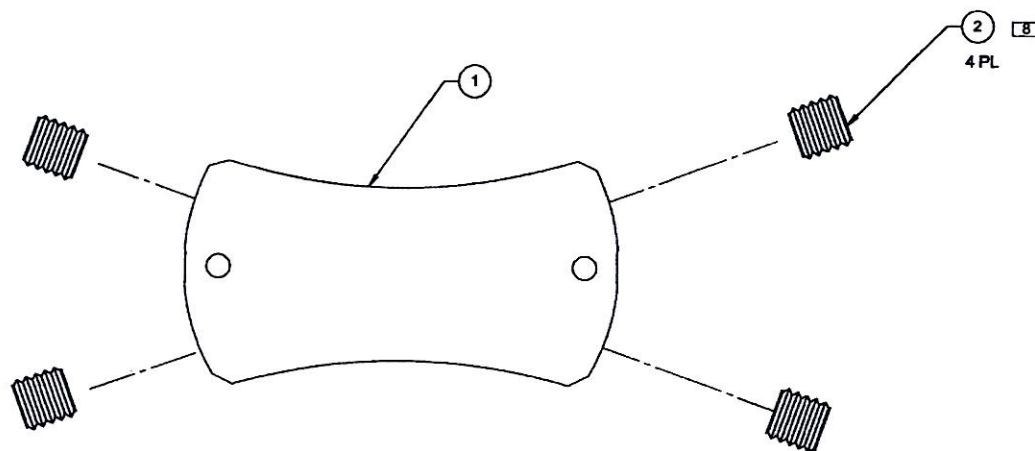
RELEASED  
2016-11-01

APPROVED

|            |          |                                                                                                                                                                                                                                                                                                          |              |
|------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| DESIGN     | AK       | <b>DART AEROSPACE USA, INC.</b>                                                                                                                                                                                                                                                                          |              |
| DRAWN      | AJS      | EUGENE, OR                                                                                                                                                                                                                                                                                               |              |
| CHECKED    | WM       | DRAWING NO.                                                                                                                                                                                                                                                                                              | REV. C       |
| MFG. APPR. | JLM      | <b>D5101</b>                                                                                                                                                                                                                                                                                             | SHEET 4 OF 8 |
| APPROVED   | WM       | TITLE                                                                                                                                                                                                                                                                                                    | SCALE        |
| DE APPR.   | DS       | <b>CROSSBOLT SPACER</b>                                                                                                                                                                                                                                                                                  | NTS          |
| DATE       | 16.04.19 | <small>COPYRIGHT © 2014 BY DART AEROSPACE USA, INC.<br/>THIS DOCUMENT IS PROVIDED CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS<br/>NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT<br/>WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small> |              |



| ITEM | QTY | P/N          | DESCRIPTION           |
|------|-----|--------------|-----------------------|
|      | X   | D5101-047    | CROSSBOLT SPACER ASSY |
| 1    | 1   | D5101-7      | CROSSBOLT SPACER      |
| 2    | 4   | MS21209F7-10 | HELICOIL, LOCKING     |



**D5101-047 CROSSBOLT SPACER ASSY**

**NOTES:**

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.7
- 7) WEIGHT: 0.15 lbs
- 8) INSTALL MS21209F7-10 HELICOIL ONE FULL REVOLUTION BELOW ADJACENT SURFACE

RELEASED  
2016-11-01

APPROVED

DESIGN  
DRAWN  
CHECKED  
MFG. APPR.  
APPROVED  
DE APPR.  
DATE

AK  
AJS  
WM  
JLM  
WM  
DS

16.04.19

**DART AEROSPACE USA, INC.**  
EUGENE, OR

DRAWING NO.  
D5101

REV. C

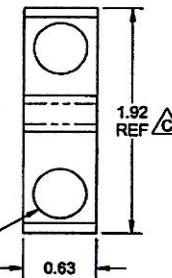
SHEET 6 OF 6

SCALE

NTS

TITLE  
**CROSSBOLT SPACER**

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**NOTES:**

- RELEASED 2016-11-01

|            |          |                                                                                                                                                                                                                                                                                                                                                                                                      |              |
|------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| DESIGN     | AK       | <b>DART AEROSPACE USA, INC.</b>                                                                                                                                                                                                                                                                                                                                                                      |              |
| DRAWN      | AJS      | EUGENE, OR                                                                                                                                                                                                                                                                                                                                                                                           |              |
| CHECKED    | WM       | DRAWING NO.                                                                                                                                                                                                                                                                                                                                                                                          | REV. C       |
| MFG. APPR. | JLM      | <b>D5101</b>                                                                                                                                                                                                                                                                                                                                                                                         | SHEET 6 OF 6 |
| APPROVED   | WM       | TITLE                                                                                                                                                                                                                                                                                                                                                                                                | SCALE        |
| DE APPR.   | DS       | <b>CROSSBOLT SPACER</b>                                                                                                                                                                                                                                                                                                                                                                              | NTS          |
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